Amendments to the Claims:

This listing of claims will replace all prior listings of claims in the application.

1. (original). An illumination apparatus comprising:

an inner-surface reflecting type integrator;

an optical system for directing a beam from a light source to a portion of incidence of said inner-surface reflecting type integrator;

an wave-front splitting type integrator;

an image-forming optical system for arranging the portion of incidence of said inner-surface reflecting type integrator approximately conjugate with a portion of incidence of said wave-front splitting type integrator, and for directing a beam from said beam mixer to said wave-front splitting type integrator; and

an irradiating optical system for superimposing multiple beams from said wave-front splitting type integrator on a plane to be irradiated, wherein a stop is provided at or near the portion of exit of said inner-surface reflecting type integrator.

2. (original). An illumination apparatus according to claim 1, wherein said inner-surface reflecting optical integrator reflects at least a part of incident light with an internal surface of said inner-surface reflecting optical integrator, and for forming a surface light source on or near the plane of exit of said inner-surface reflecting optical integrator.

3. (original). An illumination apparatus according to claim 1, wherein said wave-front splitting type integrator is a lens array for splitting a wave front of incident light, and for forming multiple secondary light sources on or near the portion of exit of said wave-front splitting type integrator.

4. (original). An illumination apparatus according to claim 1, wherein said stop is a mechanical aperture stop.

5. (original). An illumination apparatus according to claim 1, wherein said stop is made of a light shielding material applied onto the portion of exit of said inner-surface reflecting type integrator.

6. (original). An illumination apparatus according to claim 1, wherein said stop is made of a multi-layer film vapor-deposited onto the portion of exit of said inner-surface reflecting type integrator.

7. (original). An illumination apparatus according to claim 1, wherein said stop is made of a metallic film vapor-deposited onto the portion of exit of said inner-surface reflecting type integrator.

8. (currently amended). An illumination apparatus according to claim ~~1-7~~ 1, wherein said image-forming system is a zoom optical system.

9. (currently amended). An illumination apparatus according to claim 1 ~~or 8~~, wherein the portion of exit of said inner-surface reflecting type integrator has a polygonal shape, and said stop has an aperture for correcting σ anisotropy.

10. (original). An illumination apparatus according to claim 9, wherein said stop has an approximately circular aperture.

11. (cancelled).

12. (original). An illumination apparatus comprising;

an inner-surface reflecting type integrator including a portion of exit with an n-gonal shape where n is a natural number;

a wave-front splitting type integrator;

a zoom optical system for projecting an image of the portion of exit of said inner-surface reflecting type integrator, onto a portion of incidence of said wave-front splitting integrator; and

an irradiating optical system for superimposing multiple beams from said wave-front splitting integrator on a plane to be irradiated, wherein a stop having an approximately circular aperture is provided at or near the portion of exit of said inner-surface reflecting type integrator.

13. (cancelled).

14. (original). A projection exposure apparatus comprising:

an illumination apparatus for illuminating a mask located on a plane to be illuminated; and

a projection optical system for projecting a pattern on said mask onto a wafer,

wherein said illumination apparatus comprising:

an inner-surface reflecting type integrator;

an optical system for directing a beam from a light source to a portion of incidence of said inner-surface reflecting type integrator;

an wave-front splitting type integrator;

an image-forming optical system for arranging the portion of incidence of said inner-surface reflecting type integrator approximately conjugate with a portion of incidence of said wave-front splitting type integrator, and for directing a beam from said beam mixer to said wave-front splitting type integrator; and

an irradiating optical system for superimposing multiple beams from said wave-front splitting type integrator on a plane to be irradiated, wherein a stop is provided at or near the portion of exit of said inner-surface reflecting type integrator.

15. (original). A projection exposure apparatus comprising:

an illumination apparatus for illuminating a mask located on a portion to be illuminated; and

a projection optical system for projecting a pattern on said mask onto a wafer,

wherein said illumination apparatus comprising:

an inner-surface reflecting type integrator including a portion of exit with an n-gonal shape where n is a natural number;

a wave-front splitting type integrator;

a zoom optical system for projecting an image of the portion of exit of said inner-surface reflecting type integrator, onto a portion of incidence of said wave-front splitting integrator; and

an irradiating optical system for superimposing multiple beams from said wave-front splitting integrator on a plane to be irradiated, wherein a stop having an approximately circular aperture is provided at or near the portion of exit of said inner-surface reflecting type integrator.

16. (cancelled).

17. (original). A device fabrication method comprising the steps of:

projecting a pattern on a mask onto a wafer by using a projection exposure apparatus; and

developing said wafer to which said pattern was transferred,

wherein said projection exposure apparatus comprising:

an illumination apparatus for illuminating a mask located on a plane to be illuminated; and

a projection optical system for projecting a pattern on said mask onto a wafer,

wherein said illumination apparatus comprising:

an inner-surface reflecting type integrator;

an optical system for directing a beam from a light source to a portion of incidence of said inner-surface reflecting type integrator;

an wave-front splitting type integrator;

an image-forming optical system for arranging the portion of incidence of said inner-surface reflecting type integrator approximately conjugate with a portion of incidence of said wave-front splitting type integrator, and for directing a beam from said beam mixer to said wave-front splitting type integrator; and

an irradiating optical system for superimposing multiple beams from said wave-front splitting type integrator on a plane to be irradiated, wherein a stop is provided at or near the portion of exit of said inner-surface reflecting type integrator.

18. (original). A device fabrication method comprising the steps of:

projecting a pattern on a mask onto a wafer by using a projection exposure apparatus; and

developing said wafer to which said pattern was transferred,

wherein said projection exposure apparatus comprising:

an illumination apparatus for illuminating a mask located on a plane to be illuminated; and

a projection optical system for projecting a pattern on said mask onto a wafer,

wherein said illumination apparatus comprising:

an inner-surface reflecting type integrator including a portion of exit with an n-gonal shape where n is a natural number;

a wave-front splitting type integrator;

a zoom optical system for projecting an image of the portion of exit of said inner-surface reflecting type integrator, onto a portion of incidence of said wave-front splitting integrator; and

an irradiating optical system for superimposing multiple beams from said wave-front splitting integrator on a plane to be irradiated, wherein a stop having an approximately circular aperture is provided at or near the portion of exit of said inner-surface reflecting type integrator.

19. (cancelled).